

WHAT IS CLAIMED IS:

1. A method of making a solid procatalyst composition for use in a Ziegler-Natta
5 olefin polymerization procatalyst composition, said method comprising:
contacting a precursor composition comprising a magnesium compound with a titanium
halide compound and an internal electron donor in any order, in a suitable reaction medium to
prepare a solid procatalyst composition,
separating the solid procatalyst from the reaction medium,
10 extracting the solid procatalyst composition by contacting the same one or more times with
a liquid diluent at an elevated temperature for a period of time sufficient to prepare a solid
procatalyst composition having a decreased titanium content compared to the titanium content of
the solid procatalyst composition before said extraction, and
recovering the solid procatalyst composition.
- 15 2. The method of claim 1 wherein the diluent is selected from the group consisting of
toluene, xylene, isopentane, isooctane, chlorobenzene, and dichlorobenzene.
3. The method of claim 2 wherein the diluent is chlorobenzene.
4. The method of claim 1 wherein the extraction is conducted at a temperature above
45 °C.
- 20 5. The method of claim 1 wherein the extraction is conducted at a temperature within
the range of from about 115 °C to about 200 °C.
6. The method of claim 5 wherein extraction takes place at a temperature within the
range of from about 120 °C to about 150 °C.
7. The method of claim 1 where the extraction is conducted for a period of time
25 ranging from about 5 minutes to about 1 day.
8. The method of claim 1 wherein the extraction is repeated at least once.
9. The method of claim 1 wherein the solid procatalyst is contacted with a halide salt
compound in a substitution reaction before or during the extraction step.
10. The method of claim 1 wherein the solid procatalyst is dried prior to extraction.
- 30 11. A solid procatalyst composition for use in a Ziegler-Natta olefin polymerization
catalyst composition prepared according to the method of claim 1.
12. A Ziegler-Natta olefin polymerization catalyst composition comprising a solid
procatalyst composition of claim 11,
a cocatalyst; and
35 a selectivity control agent.

13. A process for polymerizing an olefin monomer comprising contacting the olefin monomer under polymerization conditions with a Ziegler-Natta olefin polymerization catalyst composition according to claim 12.

14. An olefin polymer prepared by the process recited in claim 13.

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